

# تحلیل داده و هوش تجاری

جلسه سوم - تبلو

## DATA ANALYSIS & BI

TABLEAU

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# Tableau

- An American interactive data visualization software
- Focused on business intelligence
- Was founded in 2003 in Mountain View, California,
- Is currently headquartered in Seattle, Washington
- In 2019 the company was acquired by Salesforce (a leader in the CRM field) for \$15.7 billion

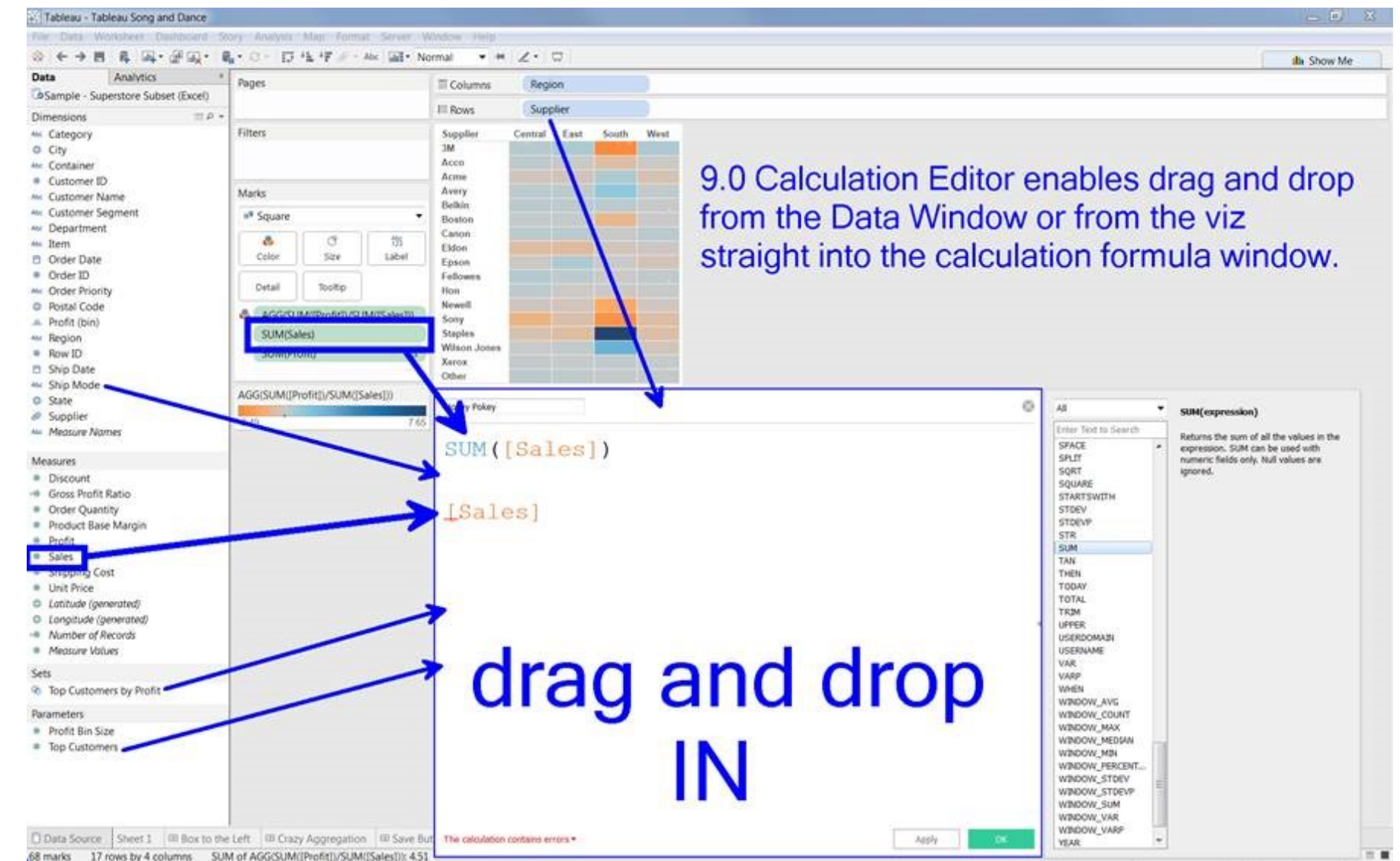


# Tableau products

- Tableau Desktop
- Tableau Server
- Tableau Prep Builder (released in 2018)
- Tableau Vizable (consumer data visualization mobile app released in 2015)
- Tableau Public (free to use)
- Tableau Reader (free to use)
- Tableau Mobile
- Tableau Cloud
- Tableau Prep
- Tableau CRM

# Tableau Capabilities

- Tableau offers:
  - Drag and drop
  - Multiple chart formats
  - Multiple mapping capabilities



# Tableau Map functionalities

- The software is able to plot latitude and longitude coordinates
- Also connect to spatial files like Esri Shapefiles, KML, and GeoJSON to display custom geography
- The built-in geo-coding allows for administrative places (country, state/province, county/district), postal codes, US Congressional Districts, US CBSA/MSA, Area Codes, Airports, and European Union statistical areas (NUTS codes) to be mapped automatically.
- Geographies can be grouped to create custom territories or custom geocoding used to extend existing geographic roles in the product.



# Data sources

- Tableau Software can connect to data sources:
  - regular text files (.txt, .csv),
  - Microsoft Excel (.xlsx),
  - Microsoft Access (.accdb),
  - import from Tableau workbook (.tbm)
  - Tableau Table data Extract (.tds)

# Data Type

- Tableau express automatically data types and fields.
  - Text Value
  - Data Value
  - Data and time Value
  - Numerical Value
  - Geographic Values (Latitude and longitude used for maps)
  - Boolean Values (True / False Conditions)

# Save Extensions

- **.twb** - Tableau Workbook
  - The standard workbook file format for Tableau Desktop
  - Contains worksheets, dashboards, and stories.
- **.twbx** - Tableau Packaged Workbook
  - A packaged format that includes the workbook along with any supporting local data sources and custom calculated fields or hierarchies.
  - It's useful for sharing since it bundles everything into a single file.
- **.hyper** - Hyper Data Extract
  - This is the newer data extract format introduced in Tableau 10.5
  - It replaced the .tde format
  - It's designed for faster query performance and more efficient data storage.



# Tableau Calculation

- **Basic calculations**

- allow you to transform values or members at the data source level of detail (a row-level calculation) or at the visualization level of detail (an aggregate calculation).

- **Level of Detail (LOD) expressions**

- Just like basic calculations, LOD calculations allow you to compute values at the data source level and the visualization level.
- LOD calculations give you even more control on the level of granularity you want to compute.
- They can be performed at a more granular level (INCLUDE), a less granular level (EXCLUDE), or an entirely independent level (FIXED)

- **Table calculations**

- Table calculations allow you to transform values at the level of detail of the visualization only.

# Null Handling in Tableau

- ISNULL
- IFNULL
- ZN
- IIF
- If Else Statement

**NULL**

is

**not** zero

**not** an empty string

**not** a space